

What is Claimed is:

1. A communication apparatus comprising:
a transcoder for receiving and transmitting communication signals, the
transcoder connected to a packet based network configured to deliver and
receive the communication signals to and from the transcoder; and

wherein the transcoder includes:

one or more voice processors that encode and decode the
communication signals; and

a control processor configured to control access of the one or
more voice processors to the packet based network according to a selective
queuing scheme.

2. The apparatus according to claim 1, wherein each of the one or more
voice processors is configured to insert a control flag into a signal delivered to
the control processor, where the control processor utilizes the control flag to
determine a queuing order of the selective queuing scheme.

3. The apparatus according to claim 2, wherein the control flag indicates
whether a communication signal is one of a standard call mode and a bypass
call mode.

4. The apparatus according to claim 3, wherein standard call mode
comprises communication signals that are at least one of decoded and encoded
by the transcoder and bypass call mode comprises communication signals that
are not encoded and decoded by the transcoder.

5. The apparatus according to claim 4, wherein the communication
signals that are at least one of decoded and encoded by the transcoder are one
of mobile-to-landline and landline-to-mobile calls and the communication
signals that do not require encoding and decoding are mobile-to-mobile calls.

*Fig 9 - TRX (Trunk)
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Fig 13, Q1022

6. The apparatus according to claim 1, wherein the selective queuing scheme comprises a modified FIFO queue wherein communication signals having a control flag indicating a bypass mode call are placed at the bottom of the modified FIFO queue such that the communication signals are output to the packet based network after normal calls.

7. A communication system comprising:

one or more base sites that are each configured to transmit and receive wireless communication signals from one or more mobile devices and encode and decode the wireless communication signals; the one or more base sites each including a packet based network and at least one transcoder;

one or more PSTN's;

at least one switching center connected to the one or more base sites and one or more PSTN's by a dedicated line network, the at least one switching center configured to route communication signals between the one or more base sites and the one or more PSTN's; and

wherein at least one transcoder comprises:

one or more voice processors configured to encode and decode the communication signals; and

a control processor configured to control access of the one or more voice processors to the packet based network according to a selective queuing scheme.

8. The system according to claim 7, wherein each of the one or more voice processors is configured to insert a control flag into a signal delivered to the control processor, where the control processor utilizes the control flag to determine a queuing order of the selective queuing scheme.

9. The system according to claim 8, wherein the control flag indicates whether a communication signal is one of a standard call mode and a bypass call mode.

10. The system according to claim 9, wherein standard call mode comprises communication signals that require at least one of decoding and encoding by the transcoder and bypass call mode comprises communication signals that do not require encoding and decoding by the transcoder.

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11. The system according to claim 10, wherein the communication signals that require at least one of decoding and encoding by the transcoder are one of mobile-to-landline and landline-to-mobile calls and the communications signals that do not require encoding and decoding are mobile-to-mobile calls.

12. The system according to claim 7, wherein the selective queuing scheme comprises a modified FIFO queue wherein communication signals having a control flag indicating a bypass mode call are placed at the bottom of the modified FIFO queue such that the communication signals are output to and received from the packet based network after normal calls.

13. A method of operating a packet based communication system having one or more transcoders each with a control processor and one or more voice processors, wherein the control processor controls access of the one or more voice processors to a packet based network according to a selective queuing scheme, the method comprising:

transmitting a control flag with communication signal information from each of the one or more voice processors to the control processor each time a communication signal is transmitted by at least one of the voice processors, wherein the control flag indicates whether the communication signal is one of a bypass call and a standard call; and

selectively allowing access to the packet based network by the one or more voice processors through the control processor, based on the selective queuing scheme wherein standard calls are given time priority over bypass calls such that standards calls are passed to and from the packet based network before the bypass calls.

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14. The method according to claim 13, wherein the bypass calls are mobile-to-mobile calls and the normal calls are one of mobile-to-landline and landline-to-mobile calls.

5 15. The method according to claim 13, wherein access to the one or more voice processors is configured to insert a control flag into a signal delivered to the control processor, where the control processor utilizes the control flag to determine a queuing order of the selective queuing scheme.

16. The method according to claim 15, wherein the control flag indicates whether a communication signal is one of the standard calls and the bypass calls.

17. The method according to claim 16, wherein standard calls comprise communication signals that are at least one of decoded and encoded by the transcoder and bypass calls comprise communication signals that are not encoded and decoded by the transcoder.

18. The method according to claim 13, wherein the selective queuing scheme comprises a modified FIFO queue wherein communication signals having a control flag indicating bypass calls are to be placed at the bottom of the modified FIFO queue such ^{that} the communication signals are output to the packet based network subsequent to normal calls.

19. The method according to claim 18, wherein two or more bypass calls are queued on a FIFO basis.

20. The method according to claim 18, wherein two or more standard calls are queued on a FIFO basis.